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PATENT
454311-2220.2**REMARKS**

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the remarks previously presented and herewith.

I. Status of Claims and Formal Matters

Claims 20-53, 60-71, 76-79, and 84-110 are currently pending in the present application. Claims 20-29 and 33-53 are herein withdrawn from consideration. Claims 30-32, 60, 66, 76, 84, 93, and 102 are currently amended in the present application to add clarity. Claims 54-59, 72-75, 80-83, and 111-116 are herein cancelled.

No new matter is added.

It is submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited in the Office Action, and that these claims are in full compliance with the requirements of 35 U.S.C. §112. The amendments to the claims, as presented herein, are not made for purposes of patentability within the meaning of 35 U.S.C. §§§§ 101, 102, 103, or 112. Rather, these amendments and additions are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

II. The Rejections Under 35 U.S.C. §112, Second Paragraph, Are Overcome

Claims 30-32, 54-57, 60-63, 66-69, 72, 73, 76, 77, 80, and 81 were rejected under 35 U.S.C. §112, second paragraph, as being vague and indefinite because allegedly there is no recitation of any active method step that is entailed in the claimed process. Claims 54-57, 72, 73, 80, and 81 have been cancelled thereby obviating the rejection in part. Claims 30-32, 60, 66, and 76 have been amended as suggested in the Office Action by the Examiner. Specifically, the claims have been amended to include method steps. The Examiner is thanked for making this suggestion. It is believed that these amendments obviate the rejection.

Accordingly, reconsideration and withdrawal of the rejection of claims 30-32, 54-57, 60-63, 66-69, 72, 73, 76, 77, 80, and 81 under 35 U.S.C. §112 is respectfully requested.

III. The Rejections Under 35 U.S.C. §103 Are Overcome

Claims 30-32, 54-57, 60-63, 66-69, 72, 73, 76, 77, 80, 81, 84-86, 89, 93-95, 98, 102-104, 107, and 111-114 are rejected under 35 U.S.C. §103(a) as being unpatentable over Esté et al. in view of Bazan et al. Applicants respectfully disagree and traverse the rejection.

Initially, Applicants point out that claims 54-57, 72, 73, 80, 81, and 111-114 have been cancelled, thereby obviating the rejection in part.

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The present invention relates to, *inter alia*, a diagnostic method for quantitating usage of the CXCR4 and/or CCR5 coreceptor by patient-derived acquired immunodeficiency virus; for determining viral tropism by determining the ratio of acquired immunodeficiency virus using the CXCR4 coreceptor compare to virus using the CCR5 coreceptor; for quantitating coreceptor usage and coreceptor usage ratios in patients before initiating antiretroviral therapy and/or in order to determine a suitable antiretroviral treatment regimen, and for monitoring the efficacy of antiretroviral therapy in a patient.

Establishing a *prima facie* case of obviousness requires three basic criteria: there must be some suggestion or motivation in the cited art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art references must teach or suggest all the claim limitations. MPEP 2143.

It is also respectfully asserted that it is well-settled that there must be some prior art teaching which would have provided the necessary incentive or motivation for modifying the reference teachings. *In re Laskowski*, 12 U.S.P.Q. 2d 1397, 1399 (Fed. Cir. 1989); *In re Obukowitz*, 27 U.S.P.Q. 2d 1063 (BOPAI 1993). Further, "obvious to try" is not the standard under 35 U.S.C. §103. *In re Fine*, 5 U.S.P.Q. 2d 1596, 1599 (Fed. Cir. 1988). And, as stated by the Court in *In re Fritch*, 23 U.S.P.Q. 2d 1780, 1783-1784 (Fed. Cir. 1992): "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggests the desirability of the modification." Also, the Examiner is respectfully reminded that for the Section 103 rejection to be proper, **both the suggestion of the claimed invention and the expectation of success must be founded in the prior art, and not Applicants' disclosure.** *In re Dow*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988).

Against this background, Esté in view of Bazan does not teach or suggest the present invention. Esté relates to the use of bicyclam AMD3100, a selective antagonist of CXCR4, to select for the outgrowth of R5 virus in peripheral blood mononuclear cells (PBMC) in culture. In essence, this reference relates to preventing the emergence of the more pathogenic strain of HIV (X4 strain) by blocking the CXCR4 coreceptor.

On the contrary, the present invention is directed to the provision of a diagnostic method to assess the suitability of a patient to various forms of antiretroviral therapy or to monitor the efficacy of antiretroviral therapy. The inventors have provided diagnostic methods of

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determining CXCR4 and/or CCR5 coreceptor usage in a patient as well as diagnostic methods of measuring patient-derived acquired immunodeficiency virus sample using the CXCR4 coreceptor compared to virus using the CCR5 coreceptor. Esté quite simply does not teach or suggest the diagnostic methods of the present invention.

Bazan does nothing to cure this defect. Bazan relates to the generation of a panel of naturally occurring primary strains from a panel of primary HIV-1 isolates representing diverse phenotypes and genetic subtypes (page 4485, left column). The specificity of the Env gene of each viral strain for either CXCR4 or CCR5 coreceptors was used to create coreceptor usage profiles and for evidence of functional CXCR4 on macrophages. Bazan does not teach or suggest diagnostic methods for comparing the ratio of viral variant in a patient-derived sample using the X4 coreceptor compared to the R5 coreceptor. Moreover, Bazan does not teach or suggest any diagnostic assay for determining coreceptor use by virus from a patient-derived sample. Therefore, Applicants respectfully assert that the Examiner has misapplied the teachings of Bazan to the present invention.

Moreover, the Examiner is respectfully requested to take into consideration the commercial success of the present invention, specifically that the subject matter of the present invention has been licensed to a third party. The Examiner is respectfully reminded that determinations of obviousness also include evaluating evidence of secondary considerations, see MPEP 2141, *Graham v. John Deere Co.*, 383 U.S. 1.

For the reasons above, it is respectfully asserted that one of skill in the art would not be motivated to combine Esté in view of Bazan in order to arrive at the present invention. Accordingly, reconsideration and withdrawal of the rejection of claims 30-32, 54-57, 60-63, 66-69, 72, 73, 76, 77, 80, 81, 84-86, 89, 93-95, 98, 102-104, 107, and 111-114 under 35 U.S.C. §103 are respectfully requested.

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454311-2220.2**IV. Double Patenting is Held in Abeyance**

Claims 30-32, 54-57, 60-63, 66-69, 72, 73, 76, 77, 80, 81, 84-86, 89, 93-95, 98, 102-104, 107, and 111-114 are rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-57 of U.S. Patent No. 6,727, 060.

The issue of whether there is indeed double patenting is contingent upon whether the remarks herewith are indeed considered and entered; and, if so, whether the Examiner believes there is overlap with claims ultimately allowed in the application. If, upon agreement as to allowable subject matter, it is believed that there is still a double patenting issue, a Terminal Disclaimer as to U.S. Patent No. 6,727, 060 will be filed for the purposes of expediting prosecution.

Accordingly, reconsideration and withdrawal of the double patenting rejection, or at least holding it in abeyance until agreement is reached as to allowable subject matter, is respectfully requested.

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If any issue remains as an impediment to allowance, prior to issuance of any paper other than a Notice of Allowance, an interview, is respectfully requested, with the Examiner; and, the Examiner is respectfully requested to contact the undersigned to arrange a mutually convenient time and manner for such an interview.

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CONCLUSION

As it is believed that this application is in condition for allowance an early notice to that effect is earnestly solicited. If, however, there remains any issue outstanding, the Examiner is invited to contact the undersigned for its prompt attention.

Respectfully submitted,

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